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REMARKS

Applicants appreciate the Examiner's thorough examination of the present application as evidenced by the Office Action of December 29, 2006 (hereinafter "Office Action") and the decision to reopen prosecution. Applicants especially appreciate the continued indication that Claims 7 - 9 recite patentable subject matter. In response, Applicants respectfully submit that the cited reference does not disclose or suggest, all of the recitations of the independent claims. Accordingly, Applicants submit that all pending claims are in condition for allowance. Favorable reconsideration of all pending claims is respectfully requested for at least the reasons discussed hereafter.

Claims 1 - 13, 37 and 40 are Statutory

Claims 1 - 13, 37, and 40 stand rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. (Office Action, page 2). As discussed in the Manual Of Patent Examining Procedure (MPEP):

The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." *State Street*, 149F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research....MPEP, Sec. 2106(II)(A).

Independent Claim 1 is directed to a method of searching a database that recites, in part:

- generating a hash key value based on a plurality of selector values;
- selecting an entry in the database having an address corresponding to the hash key value, wherein entries in the database include corresponding hash values;
- evaluating the selected entry to determine if the entry in the database corresponds to the plurality of selector values;
- incrementing the address corresponding to the hash key value if the selected entry does not correspond to the plurality of selector values;
- wherein the selecting, the evaluating and the incrementing are repeated until the hash value included in selected entry has a value which indicates that entries subsequent to the selected entry will not correspond to the plurality of selector values.

Independent Claims 37 and 40 include similar recitations. According to independent Claim

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1, both hash-based search operations and linear search operations may be combined to select a specific entry out of a database. As stated on page 3 and discussed throughout the remainder of the Specification, such techniques may be particularly useful for selecting entries from Internet Protocol Security (IPSec) Security Association Databases (SADs).

Applicants submit, therefore, that independent Claims 1, 37, and 40 provide the useful result of being able to select an entry from a database in a more efficient manner than if hash-based search techniques or linear search techniques were used alone.

The next relevant inquiry under 35 U.S.C. §101 is whether the claims fall into a statutory or non-statutory category. "As cast, 35 U.S.C. §101 defines four categories of inventions Congress deemed to be the appropriate subject matter of a patent; namely, processes; machines, manufactures and compositions of matter." (MPEP, Sec. 2106(IV.)(A)).

Applicants submit that independent Claim 1 falls under the "process" statutory category of 35 U.S.C. §101, independent Claim 37 falls under the "machine" statutory category of 35 U.S.C. §101, and independent Claim 40 falls under the "manufacture" category of 35 U.S.C. §101. With respect to independent Claim 40, this claim is a computer program product claim and recites a computer readable medium having computer readable program code/data structure embodied therein. Applicants respectfully submit that the Federal Circuit has held that computer program product claims, such as independent Claims 37 and 55, qualify as statutory subject matter (see, e.g., *In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995)).

The Office Action alleges that independent Claims 1, 37, and 40 are non-statutory because they are directed to an abstract idea rather than a practical application of an idea "because the claim does not require any physical transformation and the invention as claimed does not produce a useful, concrete, and tangible result." (Office Action, page 2). According to the MPEP:

In practical terms, claims define nonstatutory processes if they:
- consist solely of mathematical operations without some claimed practical application (i.e., executing a "mathematical algorithm"); or
- simply manipulate abstract ideas, e.g., a bid (*Schrader*, 22 F.3d at 293-94, 30 USPQ2d at 1458-59) or a bubble hierarchy (*Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759), without some claimed practical application. (MPEP, Sec. 2106(IV.)(B)(1)).

That is, non-statutory claims have no claimed practical application. As discussed above,

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however, independent Claims 1, 37, and 40 have the practical application of selecting an entry from a database in a more efficient manner using a combination of both hash-based search techniques and linear search techniques than if hash-based search techniques or linear search techniques were used alone. Such techniques may be particularly useful for selecting entries from IPsec SADs.

For at least the reasons discussed above, Applicants respectfully submit that Claims 1 - 13, 37, and 40 are directed to statutory subject matter and, therefore, request that the rejection under 35 U.S.C. §101 be withdrawn.

Claims 1, 37, and 40 are Patentable

Independent Claims 1, 37, and 40 stand rejected under 35 U.S.C. §102(b) as being anticipated by U. S. Patent Application 5,511,190 to Sharma et al. (hereinafter "Sharma"). (Office Action, page 2). Independent Claim 1 is directed to a method of searching a database that recites, in part:

...
generating a hash key value based on a plurality of selector values;
selecting an entry in the database having an address corresponding to the hash key value, **wherein entries in the database include corresponding hash values;**
evaluating the selected entry to determine if the entry in the database corresponds to the plurality of selector values;
incrementing the address corresponding to the hash key value if the selected entry does not correspond to the plurality of selector values;
wherein the selecting, the evaluating and the incrementing are repeated until the hash value included in selected entry has a value which indicates that entries subsequent to the selected entry will not correspond to the plurality of selector values. (Emphasis added).

Independent Claims 37 and 40 include similar recitations. Thus, according to the independent claims, a hash key value is generated based on a plurality of selector values. An entry is selected in a database that has an address corresponding to the hash key value.

Moreover, the entries in the database include corresponding hash values.

The Office Action cites a passage at column 2, lines 63 - 67 of Sharma as disclosing these recitations of the present invention. (Office Action, pages 3 and 4). This passage from the Summary of the Invention section refers to reading the entries in table T1 212 in memory 116. According to independent Claims 1, 37, and 40, a database entry is selected that has an

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address corresponding to the hash key value. As is known to those skilled in the art, a hash key value is provided to a hash function and the output of the hash function is used to identify a location or address in a data structure where particular data or information are stored. Sharma discloses a hash function 210 that is applied to the unique values in the group columns GC 252 of the table T1 212 to generate an index for hash table 216. (Sharma, col. 8, lines 5 - 10). Thus, the information in table T1 212 is analogous to hash key values.

The output values or addresses from the hash function 210 of Sharma are stored in the hash table 216. These addresses in the hash table 216 identify the location of various entries in the group table 218. As highlighted above, however, independent Claim 1 recites "selecting an entry in the database having an address corresponding to the hash key value, **wherein entries in the database include corresponding hash values.**" Applicants acknowledge that the group table 218 is a database from which entries may be selected corresponding to a hash key value where the unique values in table T1 212 are interpreted as hash key values. Applicants submit, however, that unlike the recitations of independent Claims 1, 37, and 40, **the entries in the group table 218 do not include corresponding hash values.** As shown in FIG. 2, the group table 218 includes three columns corresponding to dname, sum_salary, and count. None of these columns corresponds to the hash value of an entry in the group table 218, e.g., sum_salary is not generated by hashing dname or vice versa. It appears that the group table 218 merely contains summarized/aggregated data based on the table T1 212, *see, e.g.*, Sharma, col. 6, line 56 - col. 7, line 16).

In response to these arguments, the Final Action cites various tables and flags disclosed in Sharma (Office Action, pages 7 and 8), but does not point out where it is described that the group table 218 includes both entries and hash values of those entries in the same table. Moreover, if the Office Action is not citing group table 218 as disclosing the database entries recited in independent Claims 1, 37, and 40, then Applicants submit that none of the other tables disclosed in Sharma include entries and corresponding hash values for those entries in the same table. Applicants wish to point out that independent Claims 1, 37, and 40 recite that the database **entry** includes a corresponding hash value. Thus, if the Office Action is rejecting the pending independent claims under the theory that the database server 102 includes memory where database entries and hash values associated therewith are stored across various tables/data structures, then this is insufficient because independent

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Claims 1, 37, and 40 require a database entry to include the hash value of the entry data as part of the entry.

For at least the foregoing reasons, Applicants respectfully submit that independent Claims 1, 37, and 40 are patentable over Sharma and that dependent Claims 2 - 13, 37, and 40 are patentable at least by virtue of their depending from an allowable claim.

CONCLUSION

In light of the above remarks, Applicants respectfully submit that the above-entitled application is now in condition for allowance. Favorable reconsideration of this application, as amended, is respectfully requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (919) 854-1400.

Respectfully submitted,

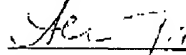


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